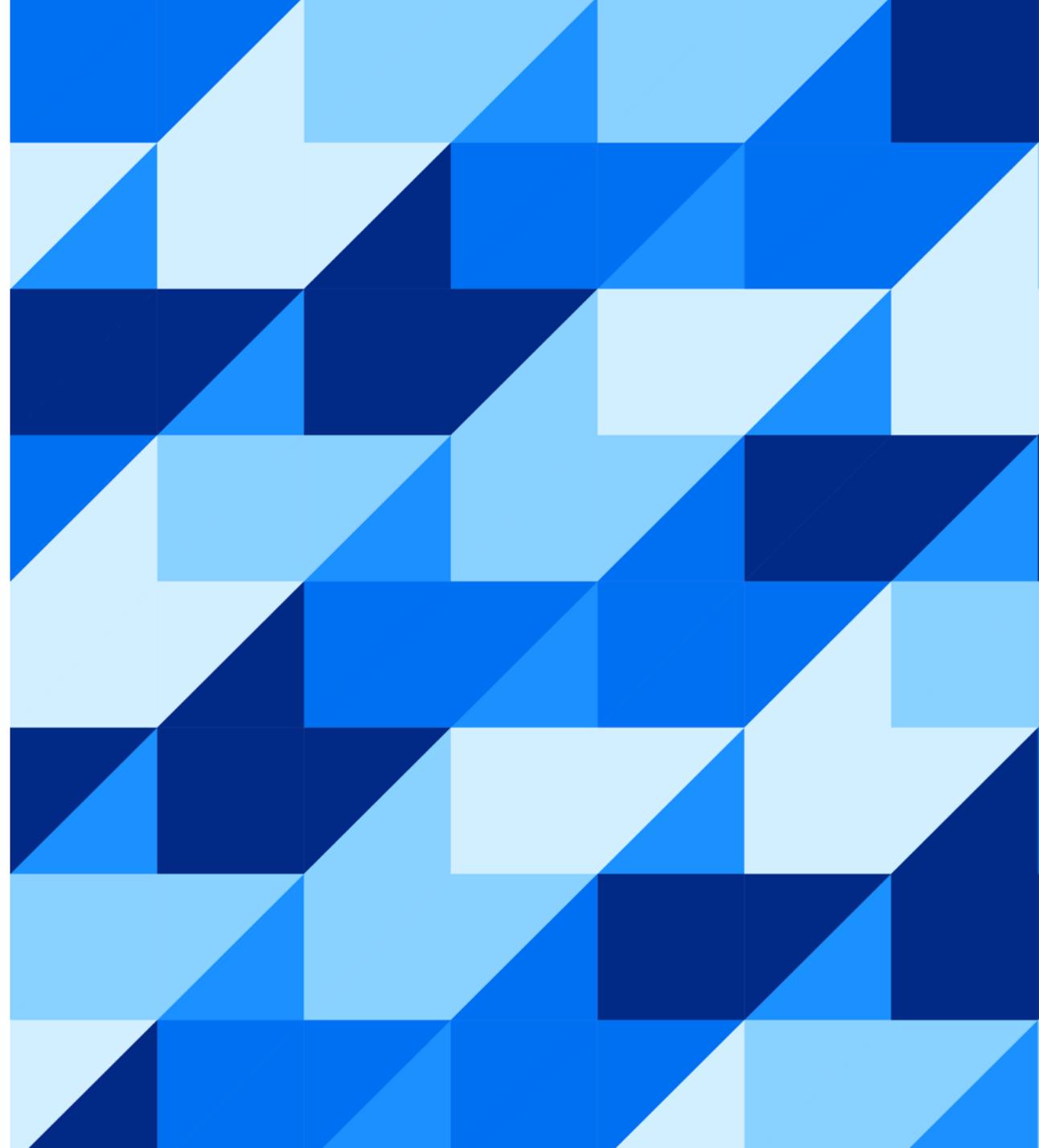




Robust Maintenance, Repair, and Operations planning in SAP IBP

Regina Kafizova
Product Manager, IBP for MRO

Public



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Agenda

1 **Solution Overview**

2 **Product Demo**

3 **Solution Roadmap**

4 **Customers: Success Stories**



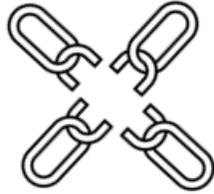
Supply Chain
Director



MRO Planner



Maintenance
Planner



Financial
Planner

SAP has conducted requirements and design collaboration workshops with over

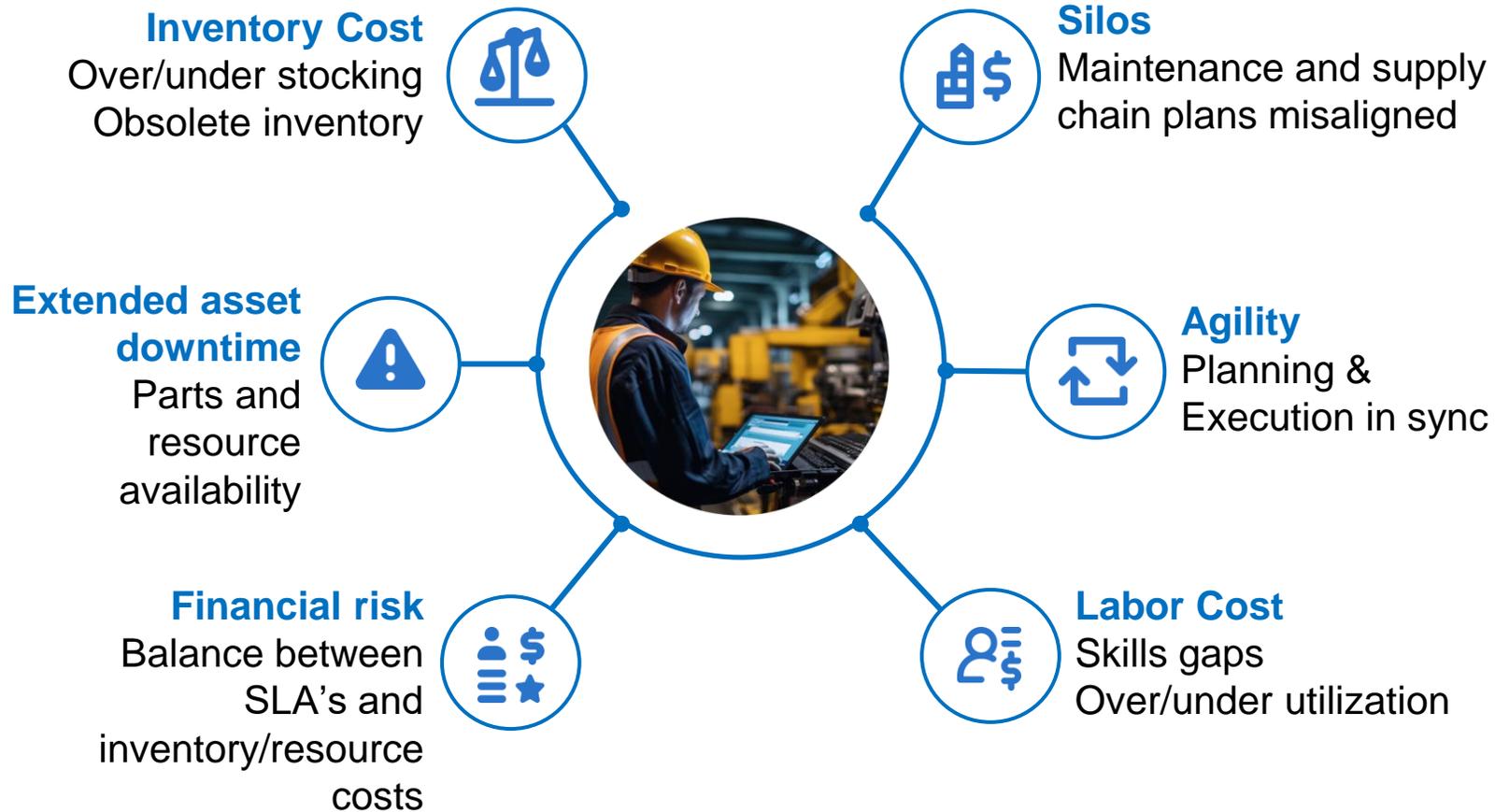
100 customers

50%

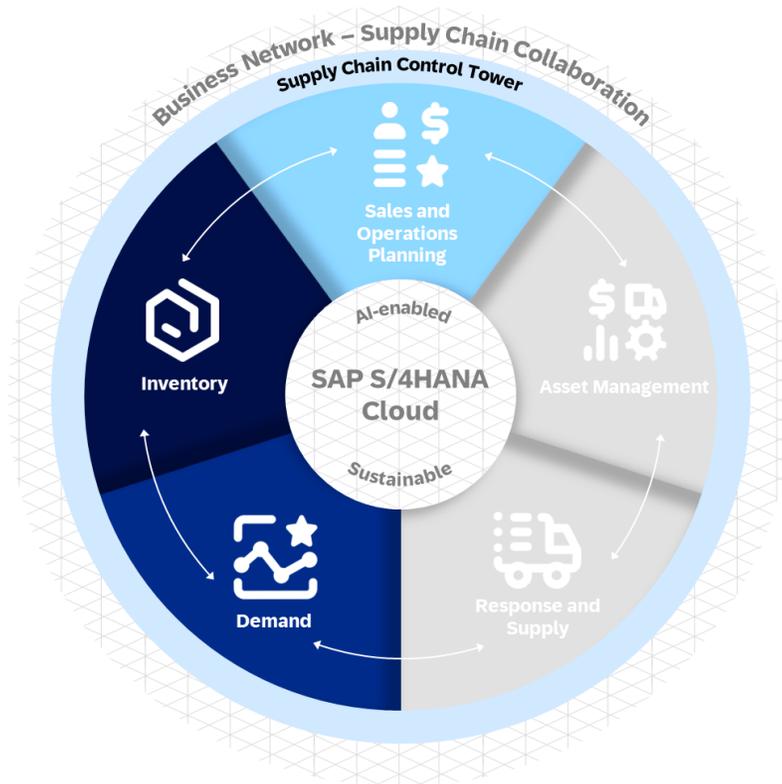
Unscheduled Asset Downtime
attributed to the lack of spare
parts, stock outs

Aberdeen Group

Key Challenges for MRO



SAP Integrated Business Planning for Supply Chain (IBP) Cloud solution with quarterly updates



Supply Chain

Value-Based Filter: (None) (0 criteria):

Chart: Include Time Totals Average Filter Attribute Total

Series: Consensus Demand, Customer Receipts

Product Desc	Customer Description	Location ID	Location	Key Figure	W/33 2021	W/34 2021	W/35 2021	W/36 2021	W/37 2021	W/38 2021	W/39 2021	W/40 2021	W/41 2021	W/42 2021	W/43 2021	W/44 2021	W/45 2021
BP-100 HEADPHONES	Domestic DE Customer 1	(None)	(None)	Consensus Demand	50	556	510	667	986	691	103	977	351	856	671	865	
	Domestic IN Customer 1	(None)	(None)	Customer Receipts	385	658	620	18	817	82	355	374	652	174	359	346	
	Domestic US Customer 1	(None)	(None)	Customer Receipts	385	658	620	18	817	82	355	374	652	174	359	346	
	Domestic US Customer 1	(None)	(None)	Consensus Demand	683	668	614	870	29	205	493	295	921	957	398	863	

Revenue

Product Family	Key Figures	AUG 2021	SEP 2021	OCT 2021	NOV 2021
FAMILY 300-HEADPHONES	Consensus Demand Plan	289,710	483,145	649,625	786
FAMILY 300-HEADPHONES	Consensus Demand Plan	654,315	1,093,205	1,414,220	1,695
FAMILY 300-HEADPHONES	Consensus Demand Plan	384,665	426,040	754,615	874
FAMILY 200-HOME THEA...	Consensus Demand Plan	1,891,650	3,032,285	4,214,435	3,911
FAMILY 300-HOME THEA...	Consensus Demand Plan	4,033,375	6,607,985	8,872,660	8,378
FAMILY 300-HOME THEA...	Consensus Demand Plan	2,141,725	3,575,700	4,659,225	4,456
FAMILY 300-MUSIC DOCKS	Consensus Demand Plan	230,562.5	330,255	403,827.5	311
FAMILY 300-MUSIC DOCKS	Consensus Demand Plan	363,270	519,435	638,865	500
FAMILY 300-MUSIC DOCKS	Consensus Demand Plan	132,647.5	189,180	235,037.5	184

Customer Demand

Product Family	Customer Description	Key Figures	AUG 2021	SEP 2021	OCT 2021
FAMILY 300-HEADPHONES	Domestic DE Customer 1	Consensus Dema...	3,192	5,712.5	7,260
FAMILY 300-HEADPHONES	Domestic DE Customer 1	Customer Receipts	3,192	5,712.5	7,260
FAMILY 300-HEADPHONES	Domestic FR Customer 1	Consensus Dema...			
FAMILY 300-HEADPHONES	Domestic FR Customer 1	Customer Receipts			
FAMILY 300-HEADPHONES	Domestic IN Customer 1	Consensus Dema...	2,086.5	2,596	3,697
FAMILY 300-HEADPHONES	Domestic IN Customer 1	Customer Receipts	2,086.5	2,596	3,697
FAMILY 300-HEADPHONES	Domestic US Customer 1	Consensus Dema...	830.5	2,151	1,877
FAMILY 300-HEADPHONES	Domestic US Customer 1	Customer Receipts	830.5	2,151	1,877
FAMILY 200-HOME THEA...	Domestic FR Customer 1	Consensus Dema...	1,845.5	3,090	5,379
FAMILY 200-HOME THEA...	Domestic FR Customer 1	Customer Receipts	2,802.5	5,076	7,513
FAMILY 300-HOME THEA...	Domestic SG Customer 1	Consensus Dema...	1,718	3,745	3,27
FAMILY 300-HOME THEA...	Domestic SG Customer 1	Customer Receipts	1,718	3,745	3,27

SAP IBP – Integrated Business Planning Solution



Supply Chain Control Tower
Exception Handling and Business Network Collaboration

Sales and Operations Planning
Strategic and Tactical Decision Processes

Demand
Statistical Forecasting,
Consensus Planning,
Demand Sensing

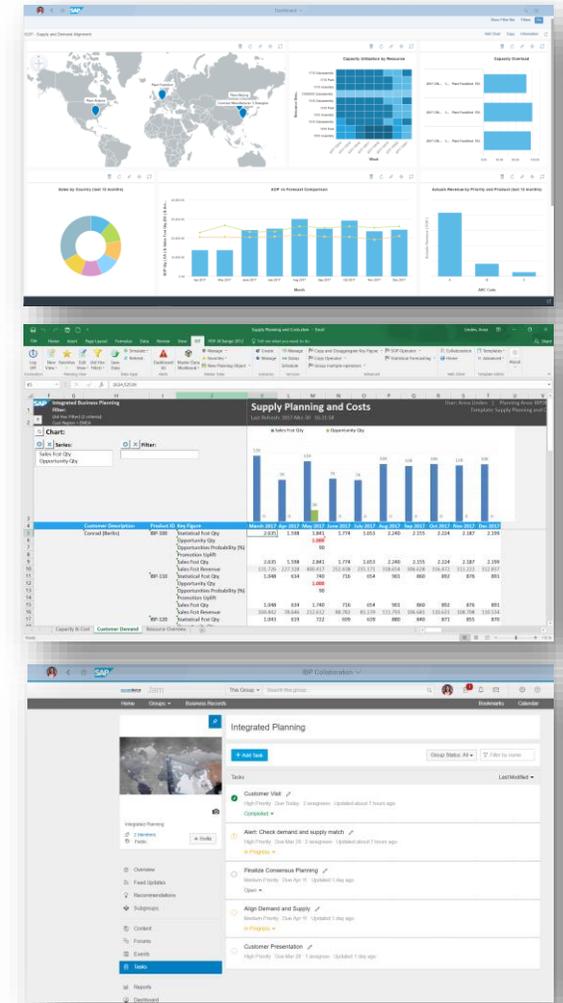
Inventory
MRO Inventory Planning
Operator, Multi-Stage
Inventory Optimization

**Demand-Driven
Replenishment**
Demand-Driven Material-
Requirements Planning
(DDMRP)

Response & Supply
Unconstrained and
Constrained Supply
Planning, Allocations and
Deployment Planning,
Order Rescheduling

IBP Platform
Analytics and Web-based Planning UI, Microsoft Excel Planning Frontend,
Job Scheduling, Data Integration, Version Planning and Simulation, User Management and Authorizations, Data
Realignment, ...

SAP HANA



Integrated Business Planning for MRO (Maintenance, Repair, and Operations)

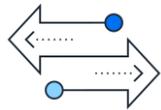
Target market: Asset-centric Segment: Oil & Gas, Mining, Utilities, Railway,...



Provides a plan on how to get right **MRO parts & workforce**

- ✓ in the right place
- ✓ at the right time

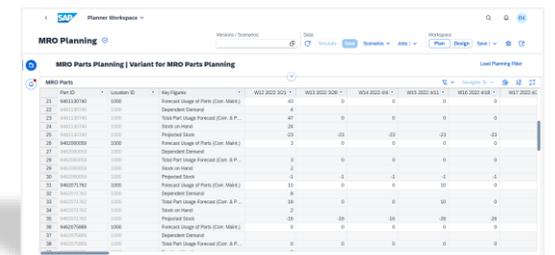
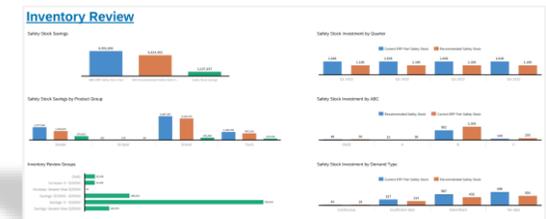
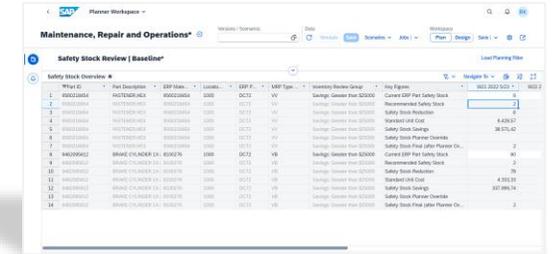
and



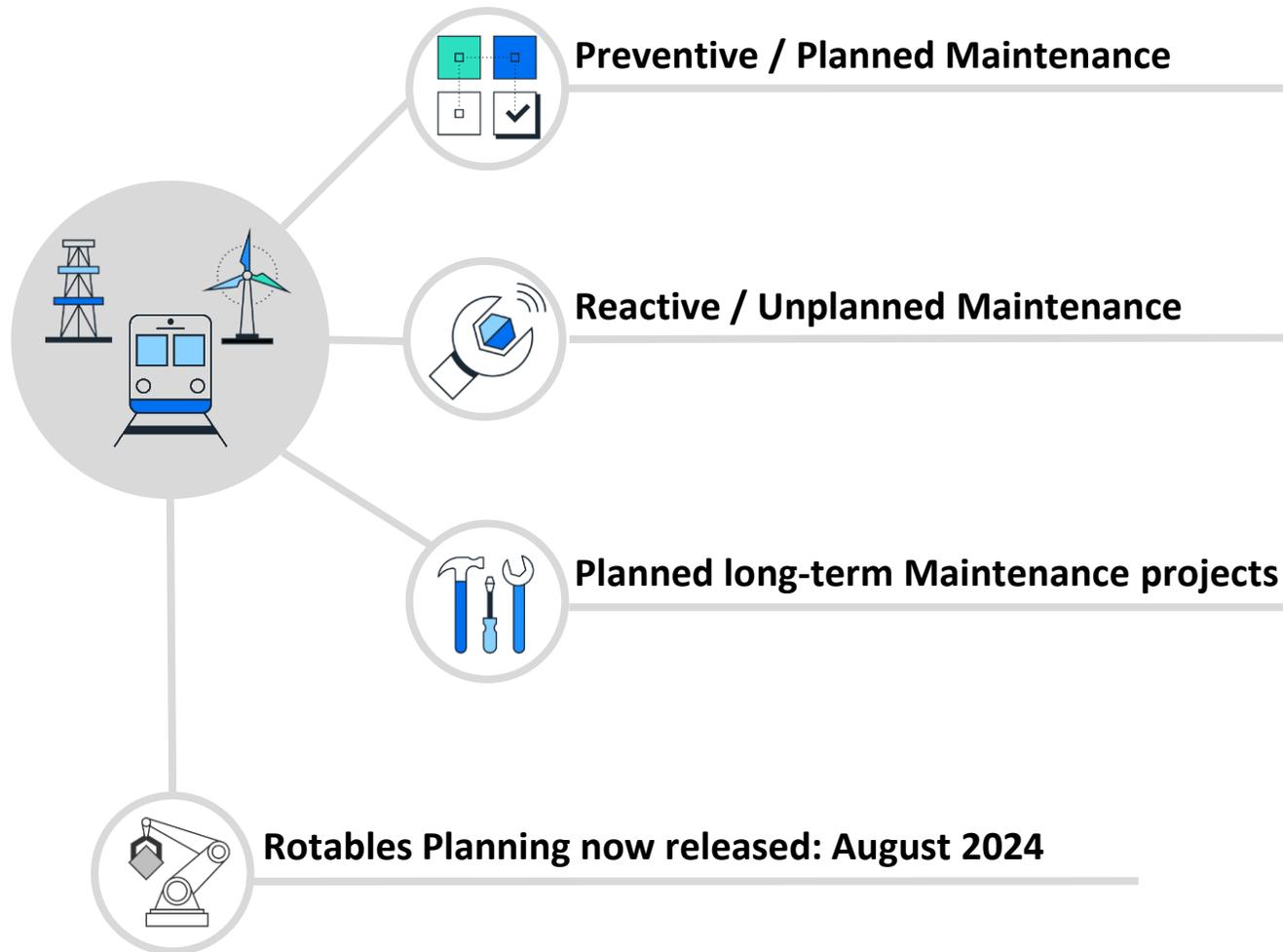
Seamless integration with ERP & S/4HANA Plant Maintenance and SAP Project System



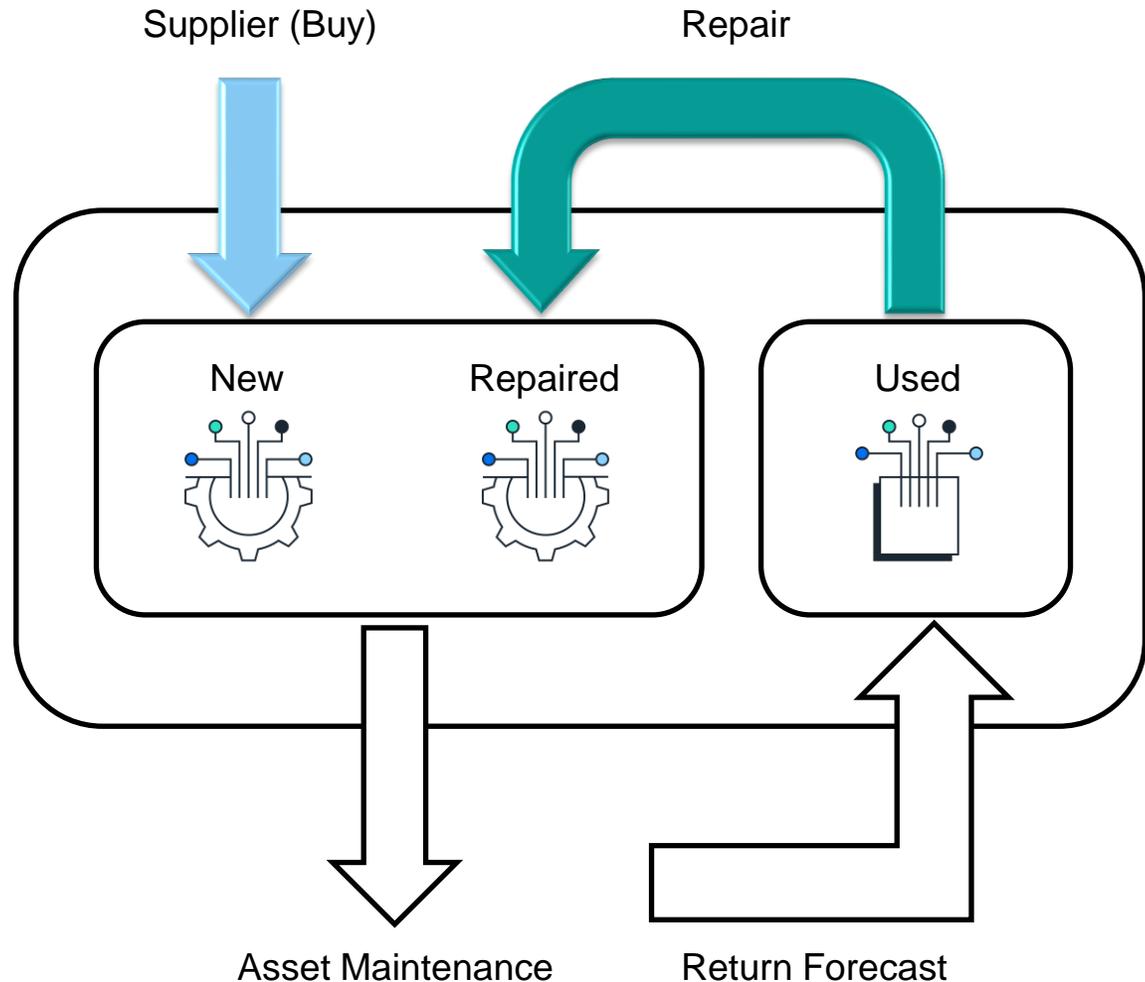
Increased assets availability and reliability



IBP for MRO: 3 key types of Asset Maintenance

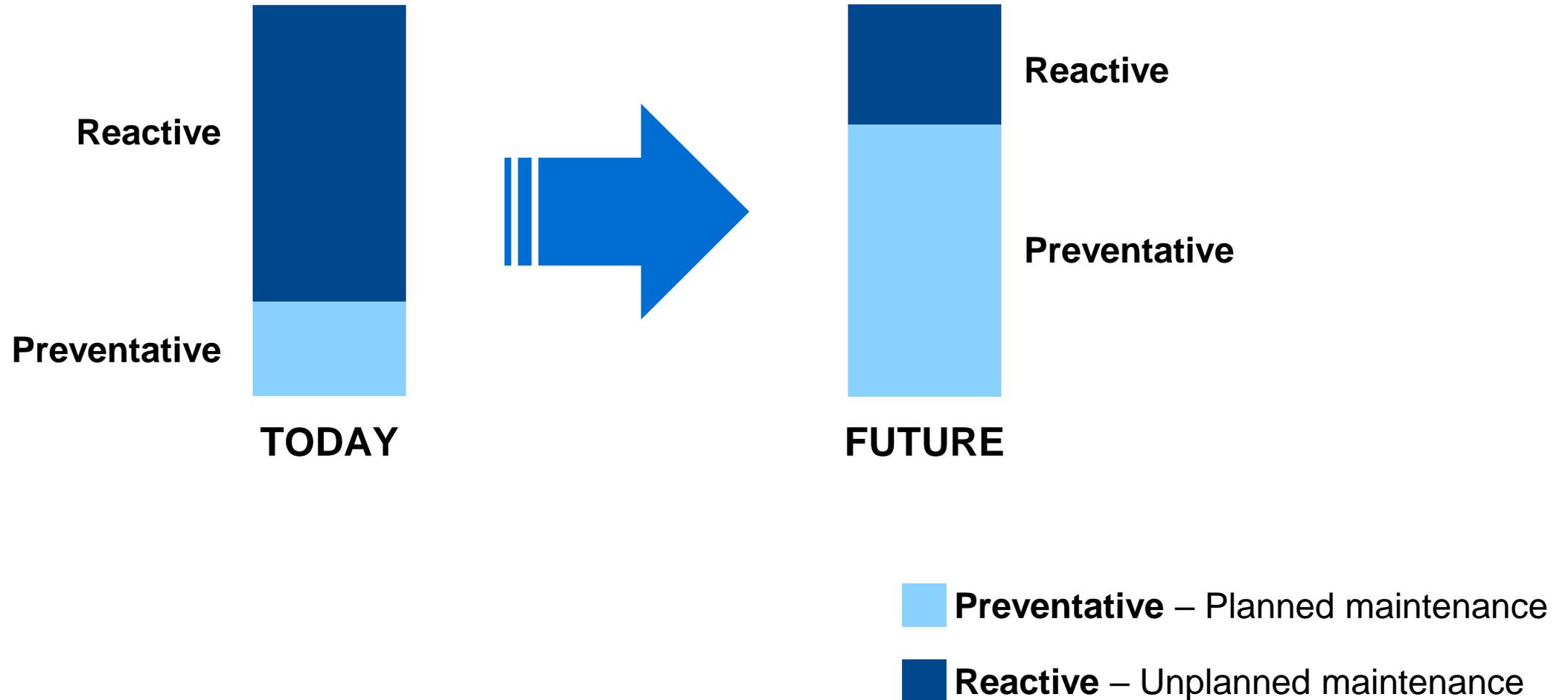


Sourcing Ratios for Rotables Planning

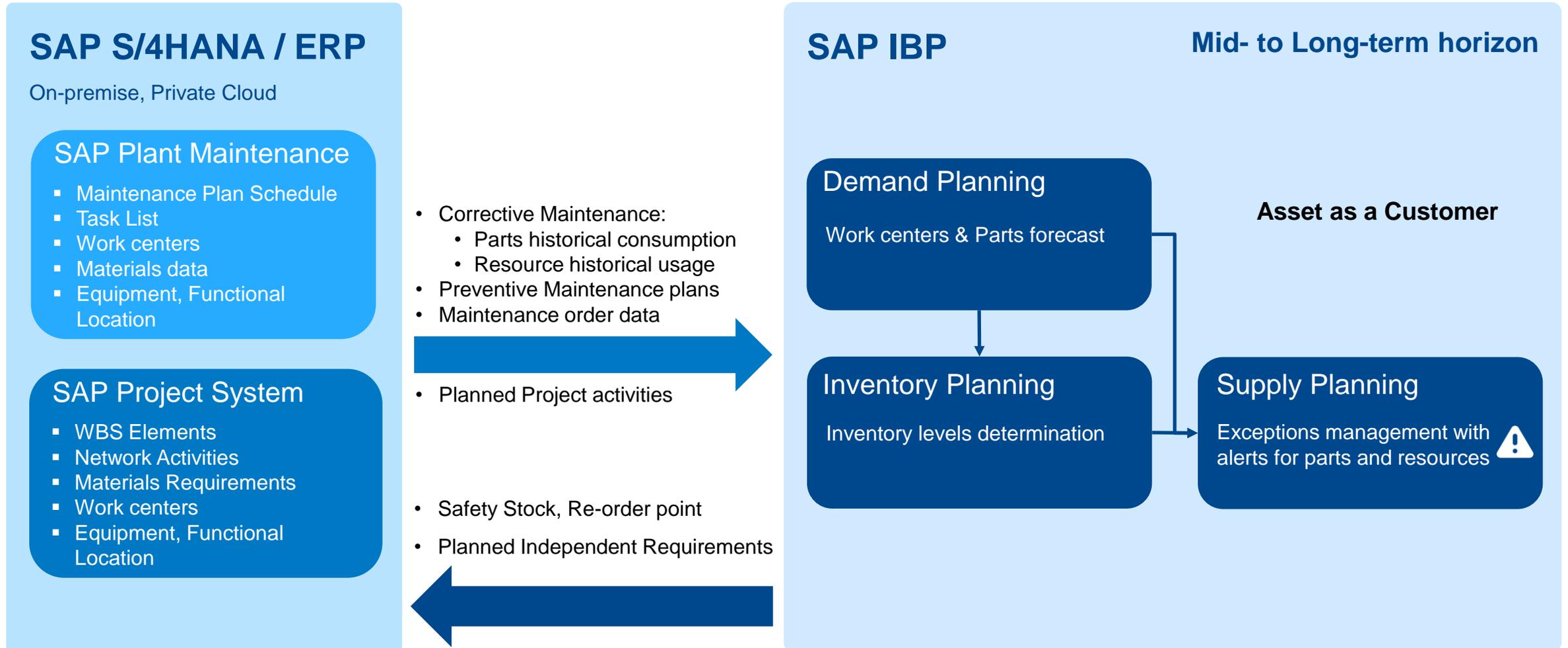


- Rotable parts are defined by the fact that they can be repaired and reused
- Generally high value
- New parts typically have higher cost than repaired parts
- Same material / product code, with different valuation type
- New and Repaired parts are available for maintenance
- Used parts are refurbished in house or at subcontractor or scrapped

Evolve from reactive maintenance to planned maintenance



MRO Parts & Resources Planning with SAP IBP



Minimize Risk from your MRO Supply Chain

Integrated end-to-end MRO planning solution

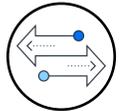


**Increase
Asset Uptime**



**Optimize Material and
Resource Spendings**

How does SAP IBP for MRO help?



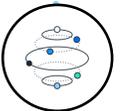
Seamless maintenance plan data integration with SAP ERP & S/4HANA Plant Maintenance & SAP Project Systems



Improved visibility for mid- to long-term maintenance activities



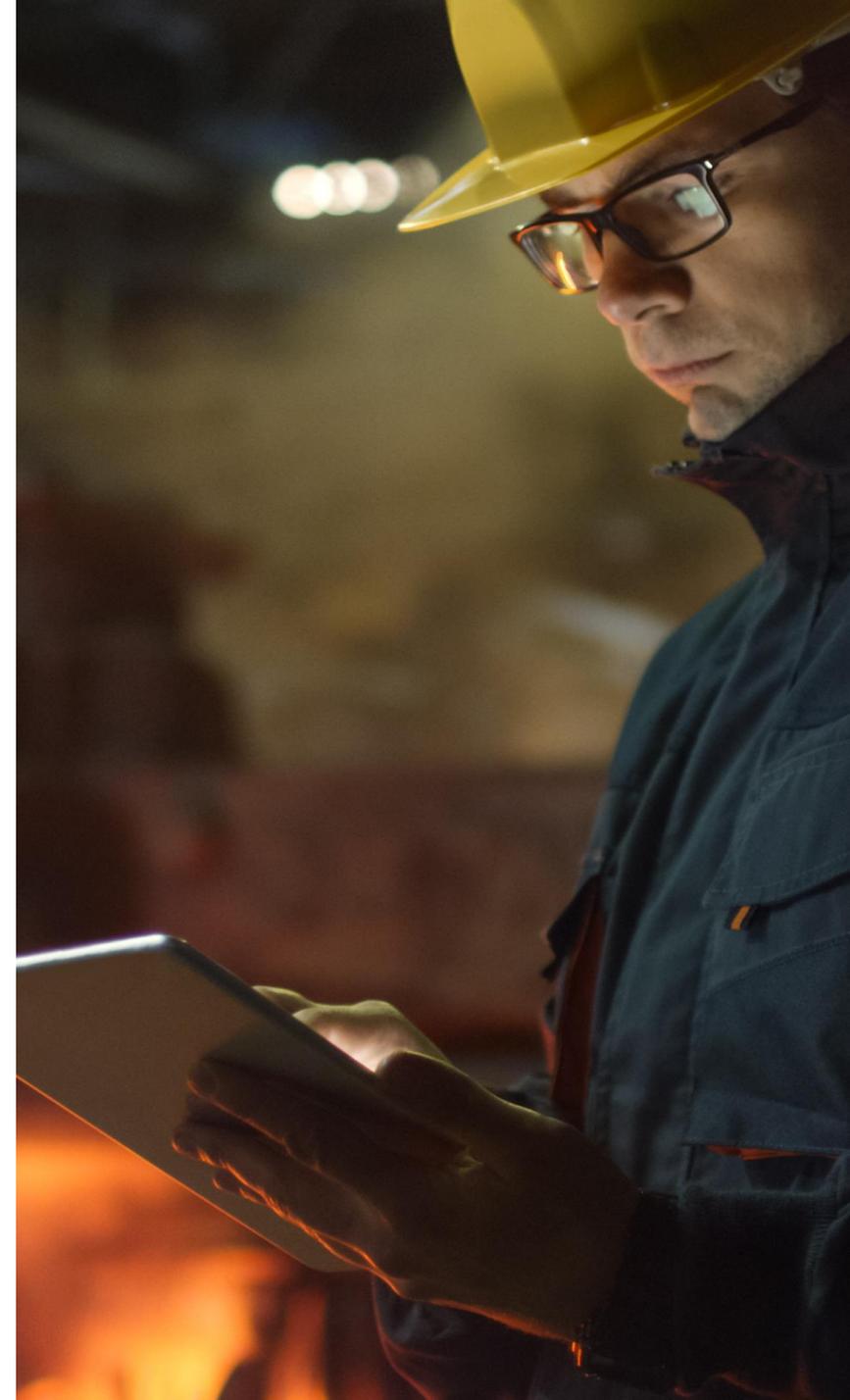
Appropriate **algorithms** for **asset-intensive industries**



Supply chain network planning **across multiple external and internal sources of supply**



Right parts and workforce in the right place at the right time



Agenda

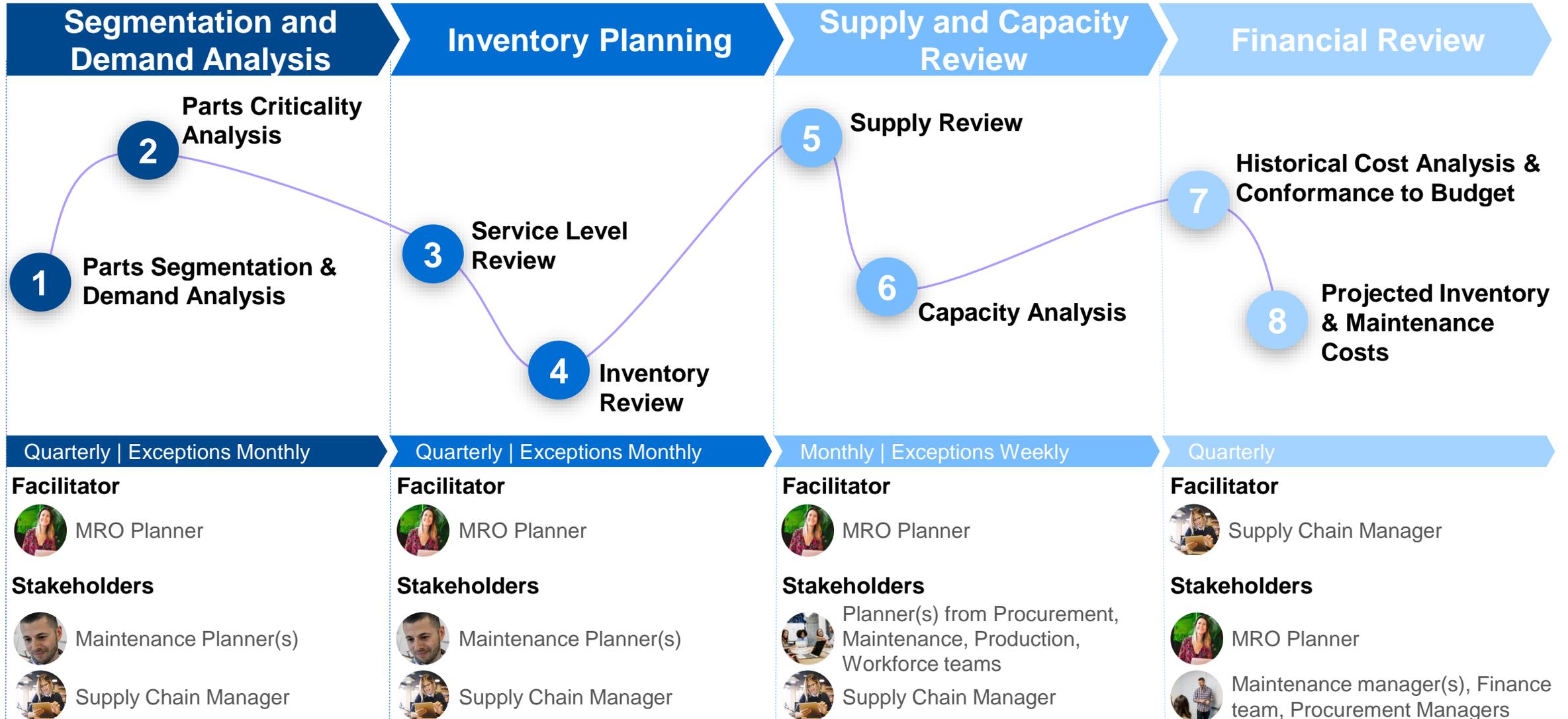
1 Solution Overview

2 **Product Demo**

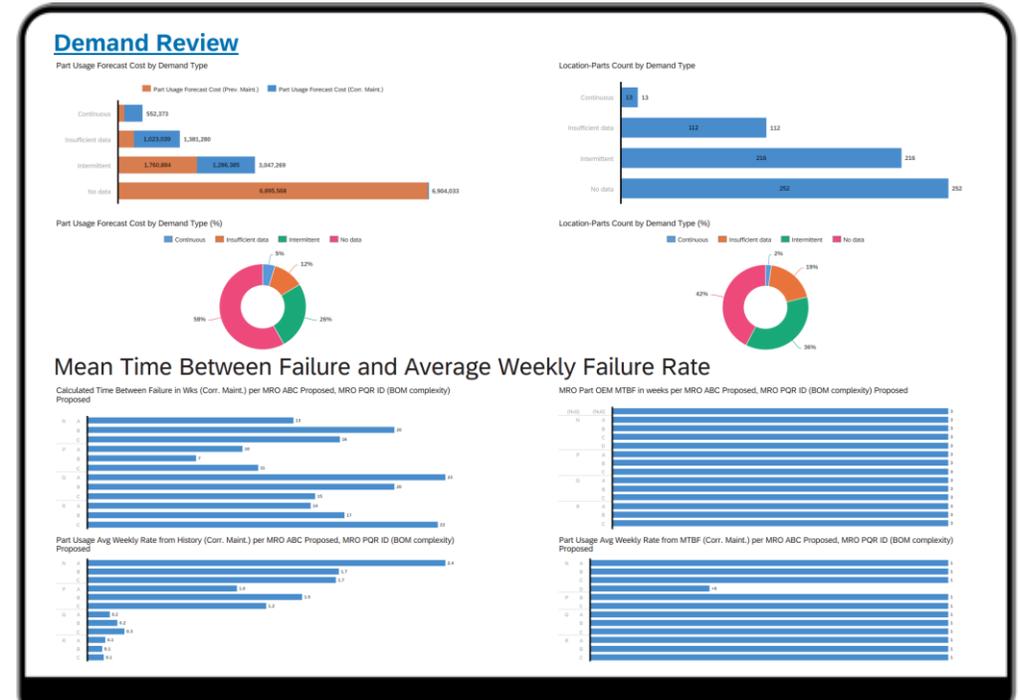
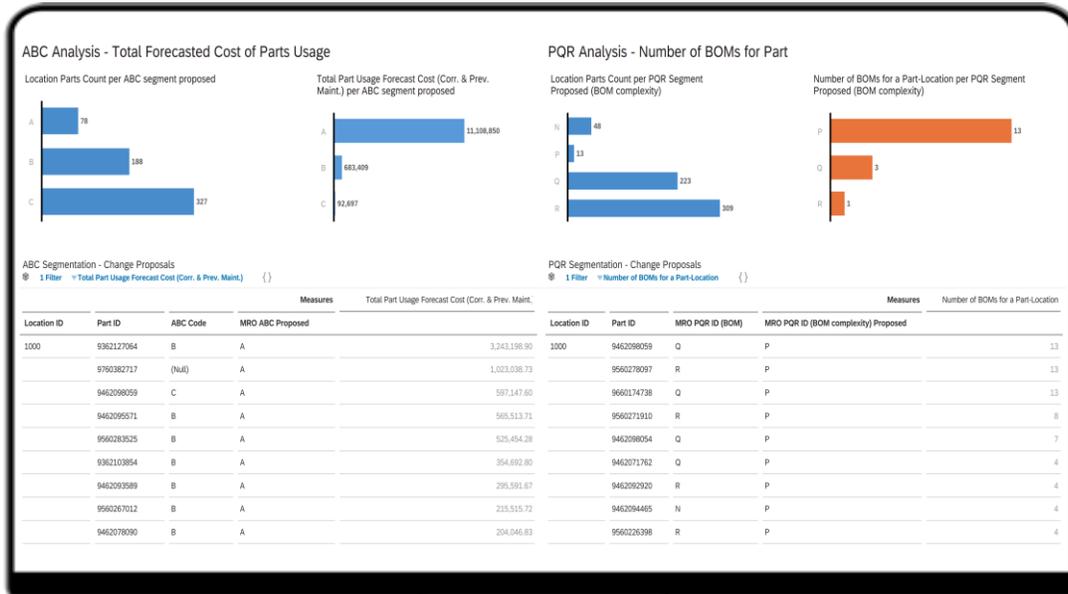
3 Solution Roadmap

4 Customers: Success Stories

Maintenance & Operations Planning with SAP IBP



Segmentation and Demand Analysis



MRO Part Criticality Analysis

SAP Planner Workspace

Maintenance, Repair and Operations*

Segmentation Overview | Baseline*

Segmentation Overview *

Part Description	Part ID	Location...	MRO PQR ...	MRO Part Demand Pattern ...	MRO ABC...	MRO Part-Location Risk Score
1 ADAPTER;PIPE-TUBE;HY...	9362100532	1000	P	Intermittent	A	4
2 ADAPTER;RUBBER LINE...	9560235263	1000	P	Intermittent	A	5
3 ADAPTER;RUBBER LINE...	9760377121	1000	R	Intermittent	A	5
4 ADAPTER;RUBBER LINE...	9760377123	1000	P	Intermittent	A	4
5 ADAPTER;RUBBER LINE...	9760377127	1000	R	Intermittent	A	3
6 AIR CONDITIONER;MIKS...	9362102621	1000	P	Intermittent	A	1
7 ARANDELA	9462075868	1000	R	No data	A	2
8 ARM;WINDSHIELD WIPER	9560255508	1000	R	Intermittent	A	4
9 BEARING;SWING CIRCLE ...	9462098057	1000	R	No data	C	2
10 BELT;V	9560268567	1000	R	Intermittent	A	5
11 BELT;V;NO/SET:2	9560288192	1000	P	Intermittent	A	4
12 CABLE;BTRY	9362111974	1000	R	Insufficient data	A	5
13 CAP;DUST-MOIST	9560226398	1000	P	Insufficient data	A	1
14 CLAMP;PIPE	9560299223	1000	R	Intermittent	A	1
15 CLAMP;RUBBER LINE;SM...	9462059376	1000	P	Intermittent	A	6
16 CLAMP;RUBBER LINE;SP...	9461019123	1000	P	Intermittent	A	2
17 CLAMP;RUBBER LINE;T F...	9462098730	1000	P	Insufficient data	C	3
18 CLAMP;RUBBER LINE;T-F...	9462040859	1000	R	Intermittent	A	4
19 CLAMP;RUBBER LINE;W...	9461127490	1000	R	Intermittent	A	6

PQR Segments: Pie chart showing 25.00% for each of four categories (No Val..., P, Q, R).

Demand Pattern: (None)

Lead Time Analysis

Location Parts Count per Lead Time Segment Proposed

Segment	Count
H	547
M	42
L	4

Average Lead Time in Days per Lead Time Segment Proposed

Segment	Average Lead Time (Days)
H	63
M	21
L	14

Echelon Analysis

Location Parts Count per Echelon Proposed

Echelon	Count
1	559
2	34

Average Lead Time in Days per Echelon Proposed

Echelon	Average Lead Time (Days)
1	60
2	59

Lead Time Segmentation - Change Proposals

Location ID	Part ID	MRO Sourcing Risk Score	MRO Sourcing Risk Score Proposed	Measures	Part Replenishment Lead Time (Days)
1000	9362100532	M	H		63
	9362100546	M	H		63
	9362100547	M	H		63
	9362100740	M	H		70
	9362101852	M	H		63

Echelon - Change Proposals

Location ID	Part ID	MRO Echelon Indicator	MRO Echelon Proposed	Measures	Part Replenishment Lead Time (Days)
1000	9362101852	1	2		63
	9362113613	1	2		63
	9362121192	1	2		21
	9362121226	1	2		21
	9362144313	1	2		63

Service Level Review

SAP Planner Workspace

M&OP Inventory Planner* Base Version x

Segmentation & Demand analysis

Part ID	Location ID	MRO Part Demand Pattern...	MRO ABC...	MRO Cost Group...	MRO Part-Location Risk Score	Key Figures
2	PUMP-02 OPERATIONSITE1	Continuous	C	Cheap	1	Forecast
3	PUMP-02 OPERATIONSITE2	Continuous	C	Cheap	2	Forecast Usage of Parts...
4	PUMP-02 GLOBAL DISTRI...	Continuous	B	Cheap	2	Forecast Usage of Parts...
5	VALVE-02 OPERATIONSITE1	Intermittent	A	Expensive	4	Forecast Usage of Parts...
6	VALVE-02 OPERATIONSITE2	Intermittent	A	Expensive	2	Forecast Usage of Parts...
7	VALVE-02 GLOBAL DISTRI...	Intermittent	A	Expensive	1	Forecast Usage of Parts...
8	COMPRESSOR-02 OPERATIONSITE1	Continuous	C	Cheap	2	Forecast Usage of Parts...
9	COMPRESSOR-02 OPERATIONSITE2	Continuous	C	Cheap	2	Forecast Usage of Parts...
10	COMPRESSOR-02 GLOBAL DISTRI...	Continuous	B	Cheap	1	Forecast Usage of Parts...

Count: 7

Demand Pattern Segmentation

Category	Percentage
Continuous	75.84%
Intermittent	24.16%

ABC Segmentation

Category	Percentage
A	17.02%
B	51.12%
C	31.86%

MRO Part - Location Risk Score

Category	Percentage
1	30.62%
2	57.51%
3	5.63%
4	6.23%

SAP Planner Workspace

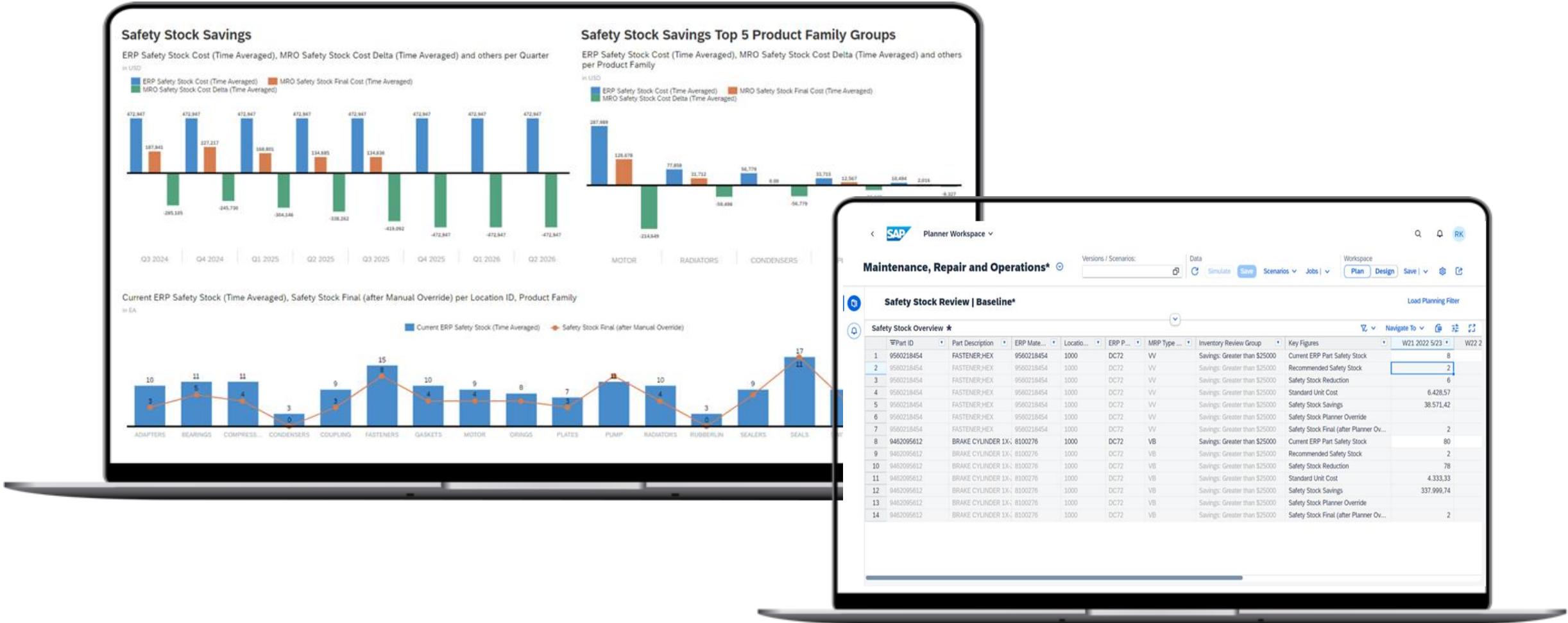
M&OP Inventory Planner* Versions / Scenarios: Base Version x

Service Level Review | MRO Parts*

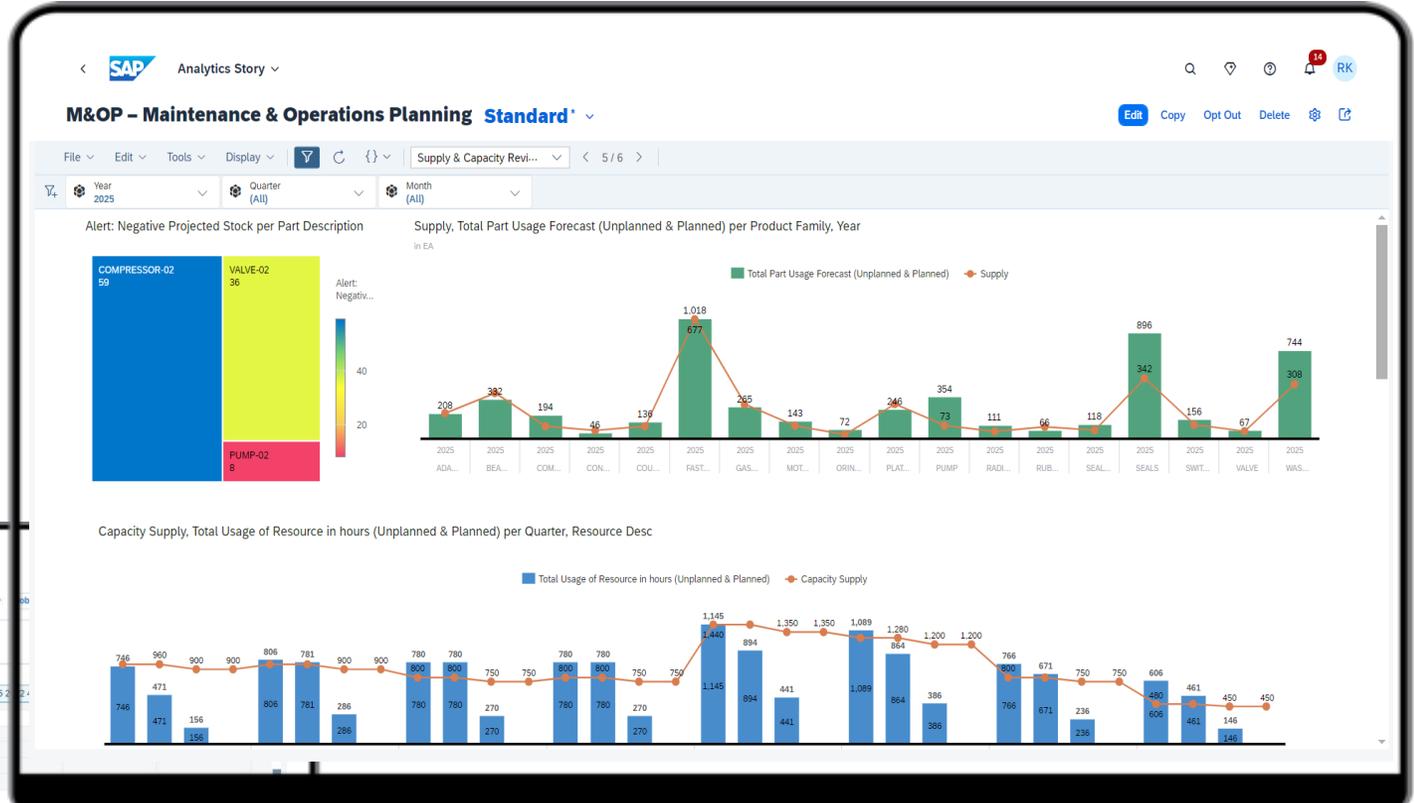
MRO Service Level by Risk Score MRO Location Parts

MRO Echelon Indicator	MRO Part-Location Risk Score	MRO Service Level Profile ID	MRO Service Level (Risk Score)
1	1	Default	0.95
2	1	Default	0.9
3	1	Default	0.85
4	1	Default	0.8
5	1	Default	0.75
6	1	Default	0.7
7	2	Default	0.7
8	2	Default	0.75
9	2	Default	0.8
10	2	Default	0.85
11	2	Default	0.9
12	2	Default	0.95
13	3	Default	0.7
14	3	Default	0.75
15	3	Default	0.8
16	3	Default	0.85
17	3	Default	0.9
18	3	Default	0.95

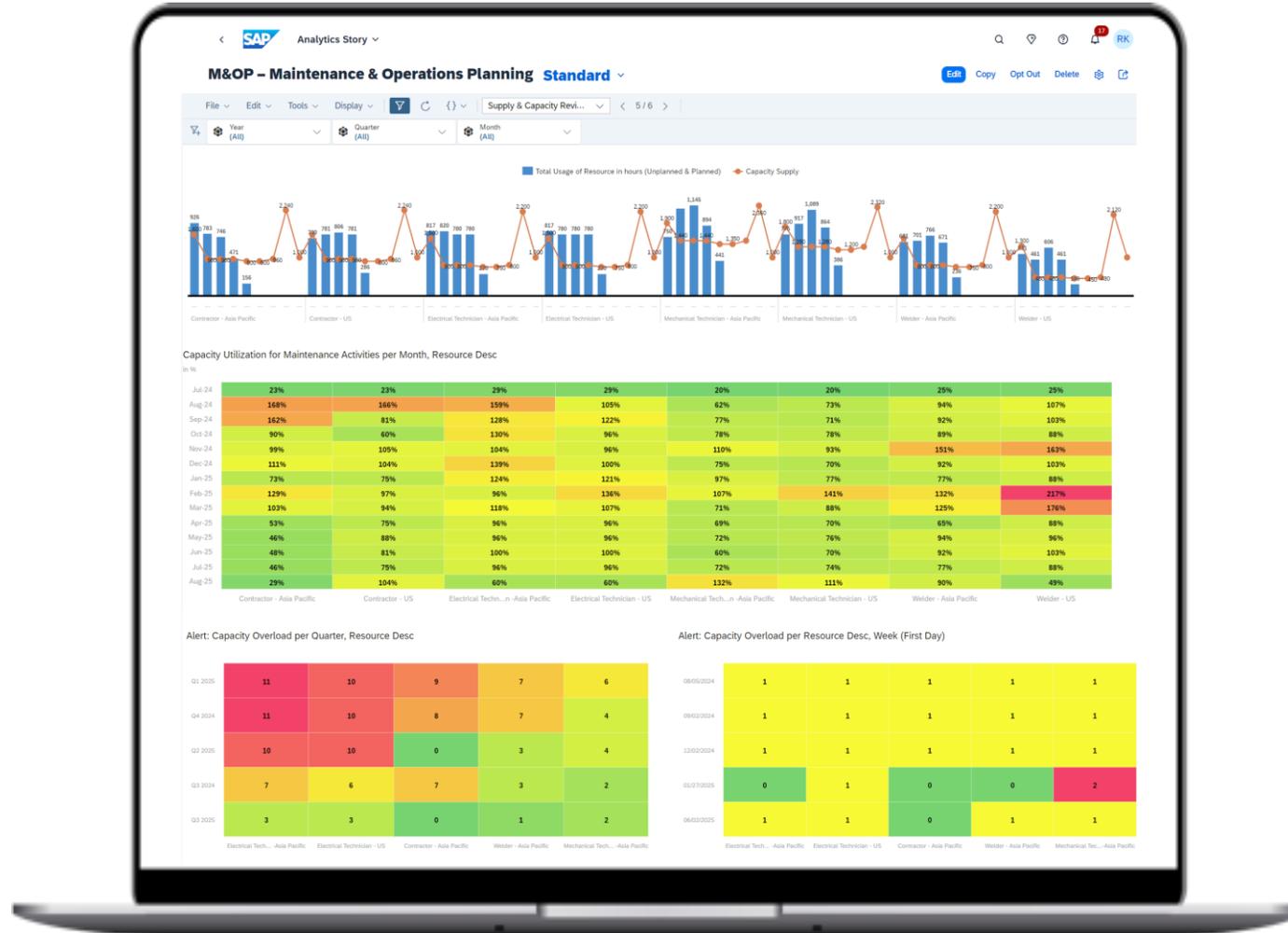
Inventory Review



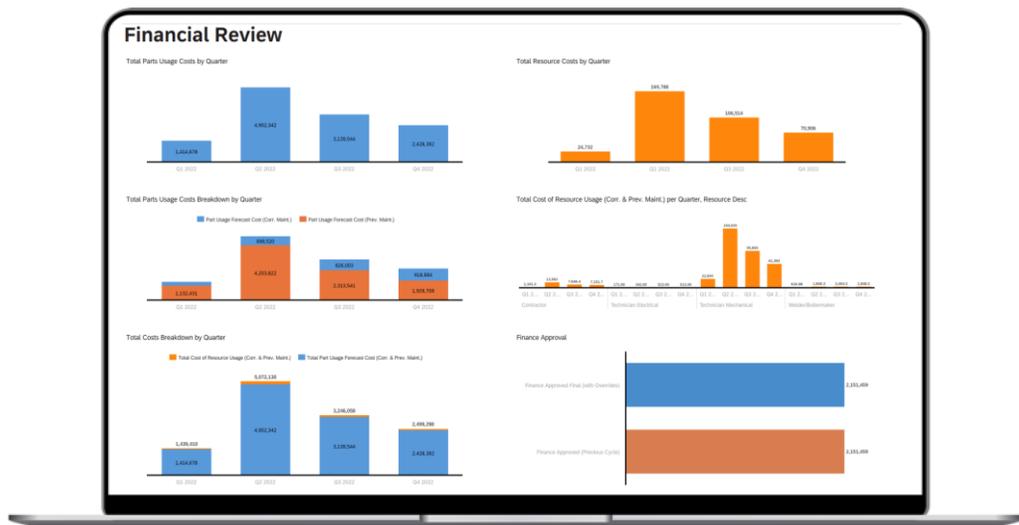
Supply Review



Capacity Analysis



Historical Cost Analysis & Conformance to Budget



Projected Inventory & Maintenance Costs



Agenda

1

Solution Overview

2

Product Demo

3

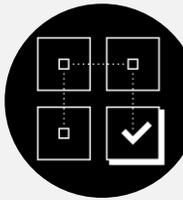
Solution Roadmap

4

Customers: Success Stories

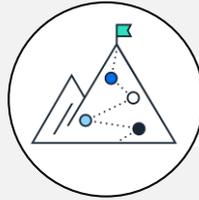
Roadmap IBP for MRO

Current and Future



Now

- Integration content for ERP and S/4HANA Plant Maintenance and Project System
- MRO-specific IBP sample planning area
- Best Practice content for MRO process
- MRO inventory planning operator calculates inventory levels using a Poisson, Gamma & Normal distribution types
- Mean Time Between Failures extension for MRO inventory planning operator
- Criticality- & segmentation-based parts' target service level determination
- Backward integration of parts' inventory levels and forecasted requirements (PIRs)



Delivered in 2024

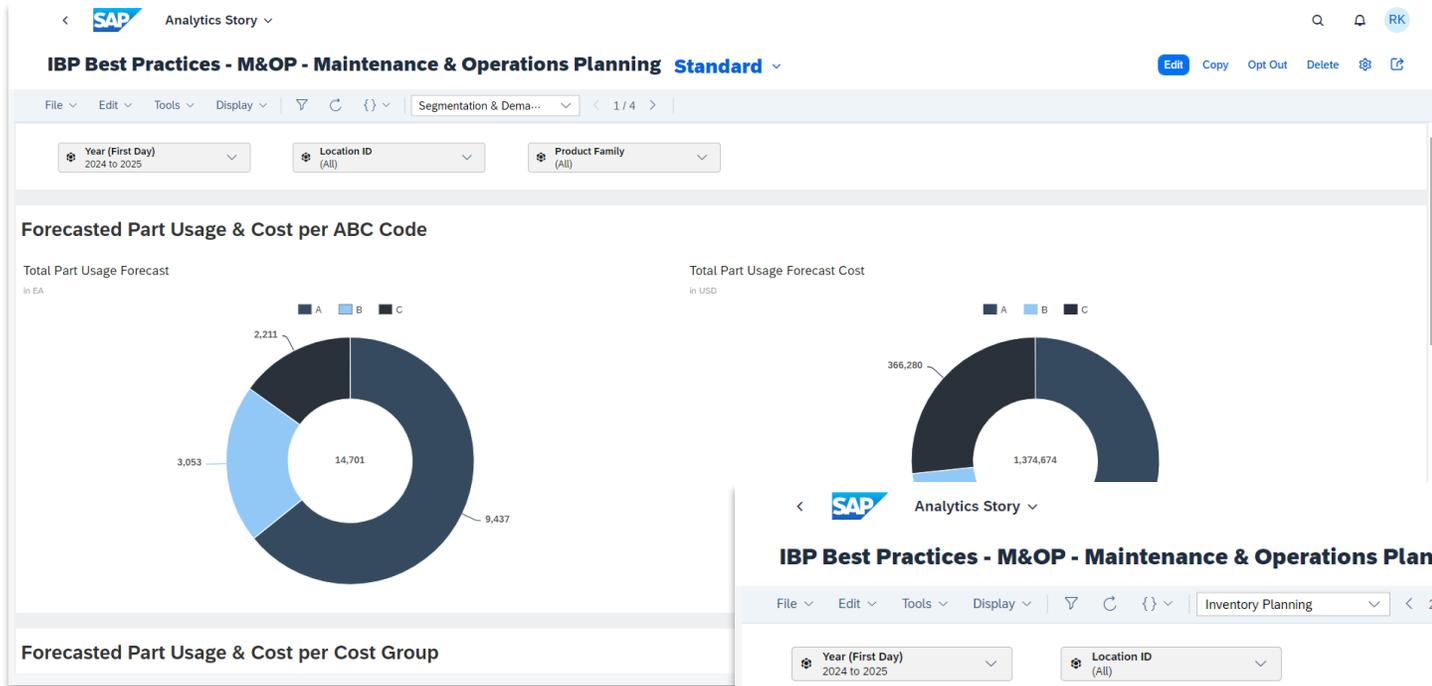
- Maintenance orders' data integration to MRO Time-series-based sample planning area
- Rotables Sourcing Ratio Operator
- Navigation to Maintenance Plans in ERP & S/4HANA
- EOQ and Service Level Operator



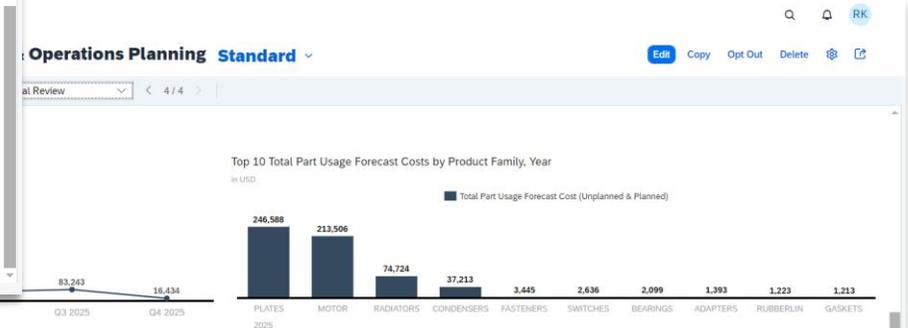
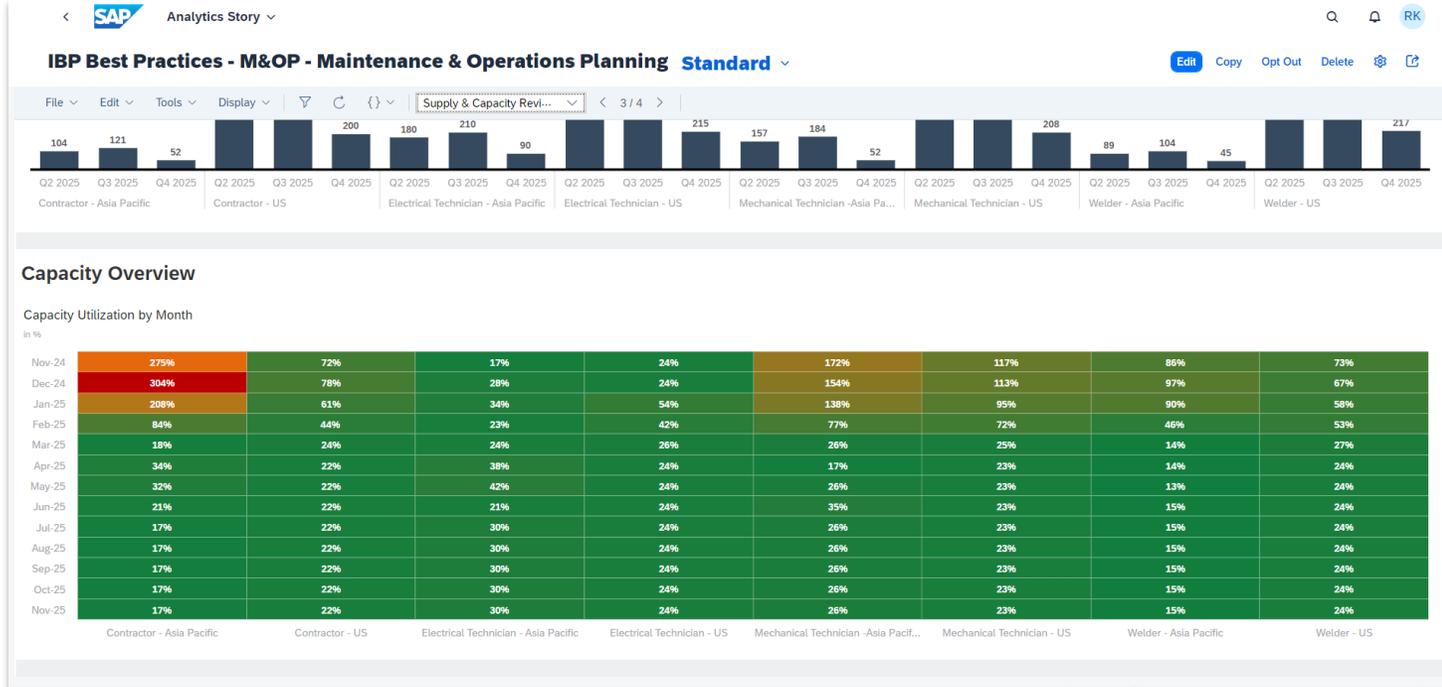
Future Direction

- Templates with Analytic Stories and PWS
- Last Time Buy process support
- Inventory Balancing operator
- Visibility of the affected asset by parts / labor shortages
- Inventory workflow process support
- IBP & SAC content for Maintenance Cost Budgeting
- Joule: planning results explanation

Templates with Analytic Stories and PWS



Templates with Analytic Stories and PWS



Templates with Analytic Stories and PWS

The screenshot displays the SAP Planner Workspace interface, divided into several key sections:

- M&OP Process:** Shows a navigation menu on the left with categories like Segmentation & Demand Analysis, Inventory Planning Inputs, Inventory Planning Outputs, Service Level Review, MRO Parts, and Parts planning. The main area shows a table for 'Segmentation & Demand analysis' with columns for Location ID, Demand Pattern, ABC, Cost Group, Lead Time Group, Part-Loc Risk Score, Part ID, Key Figures, and forecast data for W32 2024 8/5 and W33 2024.
- Inventory Planning:** A central table titled 'Inventory Planning Outputs' with columns for Location ID, Part ID, MRO Part Dem..., MRO Part-Lo..., and Key Figures. It lists various parts and their associated metrics.
- Analytics:** Three pie charts are displayed:
 - Demand Pattern Segmentation:** Shows 75.84% Continuous (blue), 24.16% Intermittent (orange), and 0% other.
 - ABC Segmentation:** Shows 51.12% B (orange), 31.86% C (green), and 17.02% A (blue).
 - MRO Part - Location Risk Score:** Shows 30.62% 1 (blue), 57.51% 2 (orange), 6.23% 3 (green), and 5.64% 4 (red).

Templates with Analytic Stories and PWS

SAP Planner Workspace

Maintenance & Operations Planning

Versions / Scenarios

Simulate Save Data Scenarios Jobs Plan Design

Parts Supply Plan Resources Capacity Plan Parts Demands for Planned Activities Resource Capacity for Planned Activities

Location ID	Part ID	Key Figures	W48 2024 11/25	W49 2024 12/2	W50 2024 12/9	W51 2024 12/16	W52 2024 12/23
209		Total Part Reservation & Forecast (Corr. & Prev. Maint.)					
210		Projected Stock	1	2	2	2	
211	9687886869	Stock on Hand	2	2	2	2	
212		Receipts	2			2	
213		Dependent Demand	2			2	
214		Total Part Reservation & Forecast (Corr. & Prev. Maint.)	3	9			
215		Projected Stock	1	1	1	1	
216	9692083239	Stock on Hand	2	2	2	2	

SAP Planner Workspace

Maintenance & Operations Planning

Versions / Scenarios

Simulate Save Data Scenarios Jobs Plan Design

Parts Supply Plan Resources Capacity Plan Parts Demands for Planned Activities Resource Capacity for Planned Activities

Location ID	Resource ID	Key Figures	W48 2024 11/25	W49 2024 12/2	W50 2024 12/9	W51 2024 12/16	W52 2024 12/23
1	1310 APJ	Capacity Utilization for Maintenance Activities	337.5%	298%	276%	387%	11
2		Capacity Supply	200	200	200	200	
3		Total Planned Resource Usage (Orders & Plans)	675	596	552	774	
4		Capacity Demand of Production Resource	675	520	472	667	
5	TEL - APJ	Capacity Utilization for Maintenance Activities	12%	49.5%	32%	29.5%	
6		Capacity Supply	200	200	200	200	
7		Total Planned Resource Usage (Orders & Plans)	24	99	64	59	
8		Capacity Demand of Production Resource	24	32	16	16	
9	TME - APJ	Capacity Utilization for Maintenance Activities	228%	74.2217%	52%	260%	
10		Capacity Supply	200	200	200	200	
11		Total Planned Resource Usage (Orders & Plans)	456	148.44352	104	520	
12		Capacity Demand of Production Resource	456	96	104	520	
13	WEL - APJ	Capacity Utilization for Maintenance Activities	120%	14.8477%		120%	
14		Capacity Supply	200		200	200	
15		Total Planned Resource Usage (Orders & Plans)	240	29.69551		240	
16		Capacity Demand of Production Resource	240			240	
17	1710 US	Capacity Utilization for Maintenance Activities	119.6762%	74%	10.3525%	119.6762%	22.17
18		Capacity Supply	200	200	200	200	
19		Total Planned Resource Usage (Orders & Plans)	239.352526	148	20.705052	239.352526	44.352
20		Capacity Demand of Production Resource	195			195	
21	TEL - US	Capacity Utilization for Maintenance Activities	23.8813%	23.8813%	23.8813%	23.8813%	23.88
22		Capacity Supply	200	200	200	200	
23		Total Planned Resource Usage (Orders & Plans)	47.762627	47.762627	47.762627	47.762627	47.762

IBP for MRO Planned Innovations: IBP & SAC content for Maintenance Cost Budgeting Planning

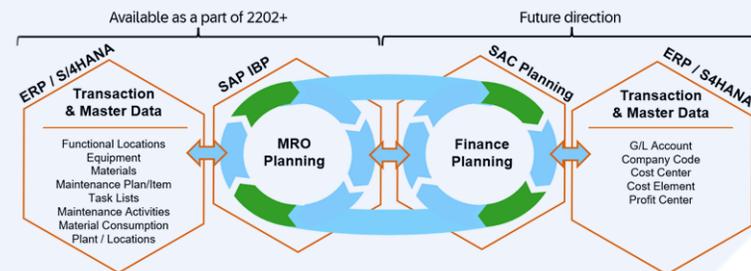
Challenge

“As finance and asset management teams we need to **collaborate** and produce a mutually agreed **Maintenance Cost Budgeting plan**, but **there is no platform for this**”



Solution

SAP Maintenance Cost Budgeting planning with IBP for MRO & SACP



Benefit



Efficient, streamlined and standardized production of Maintenance Cost Budgeting plan

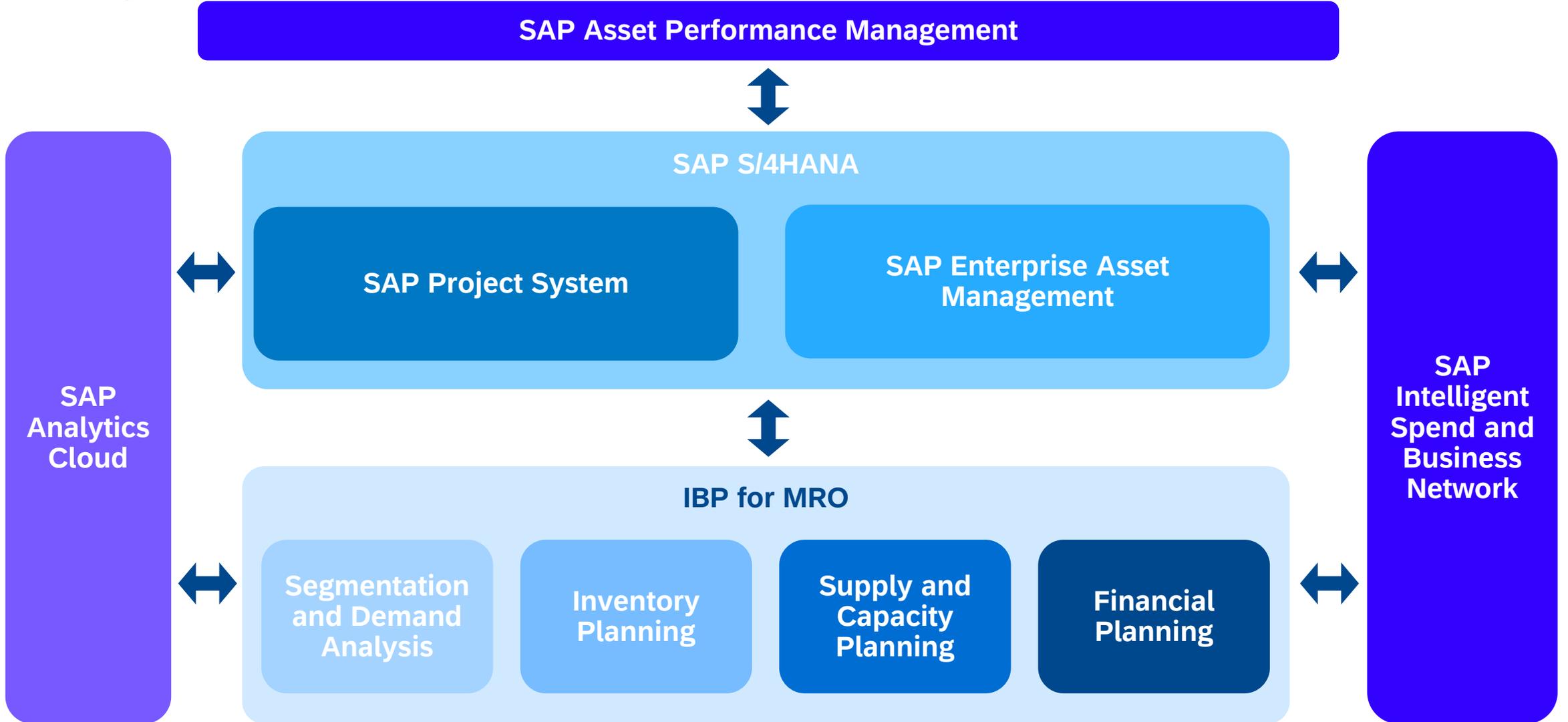


Enhanced collaboration between finance and asset management teams

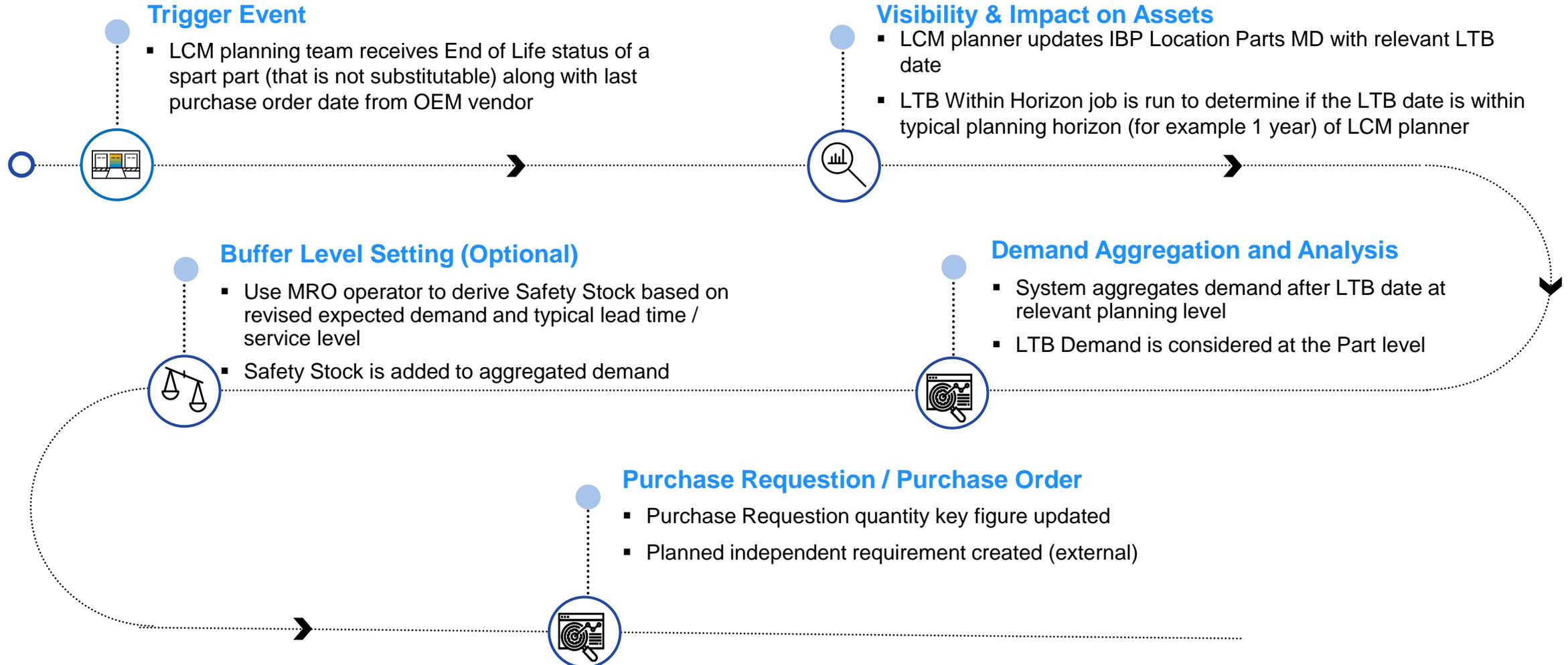
Planned for H2 2025 Release

IBP for MRO Integration Scenarios

Strategic vision



Last Time Buy – Process Flow



Inventory Balancing for Maintenance Parts

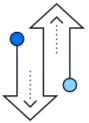
Main scope of Inventory Balancing feature



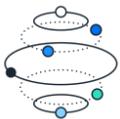
Intermittent part usage leads to **slow moving and obsolete inventory**



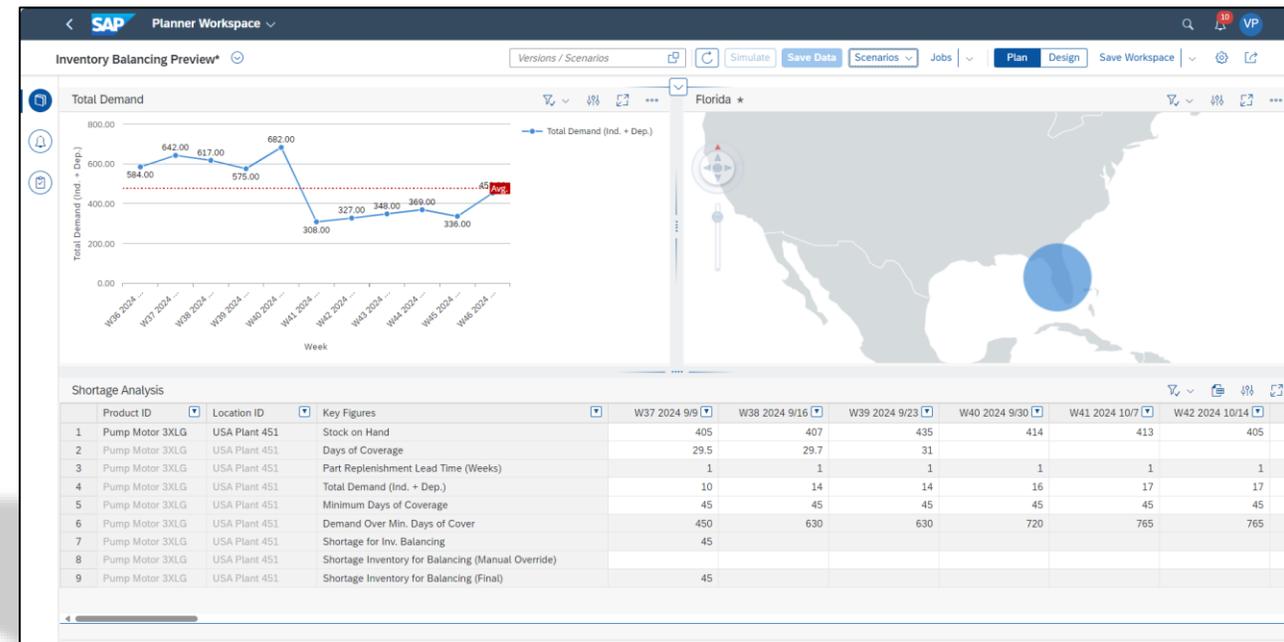
System identifies **excess and shortage inventories** across the network



Inventory Balancing algorithm **matches excesses and shortages** based on **configurable settings**



System recommends transfers **between locations with excess to locations with shortages**



Planned for 1H 2025 Release

Agenda

1 Solution Overview

2 Product Demo

3 Solution Roadmap

4 Customers: Success Stories

IBP for MRO: Official Reference Customers

Roy Hill

Industry: Mining

Key Benefits

10-20% reduction in inventory levels for critical asset components

24-60 month visibility into demand for spare parts inventory

Modules Implemented:

Demand, Inventory Optimization

OQ

Industry: Oil & Gas

Key Benefits

Automatical generation of minimum and maximum **proposals** for **MRO inventory**

Easy to use analytics feature to track master data, Inventory KPIs and address data gaps

Modules Implemented:

Inventory Optimization

Tupras

Industry: O&G Refining

Key Benefits

Increased planning horizon to 5 years

Able to leverage data in IBP to **pursue new supply chain projects**

Modules Implemented:

Demand, Inventory Optimization, S&OP

Metrogas

Industry: Utilities

Key Benefits

Warehouse stock reduction across all warehouses

Improved part turnover and **increased service level** in logistics

Better visibility due to IBP visualizations

Scenario planning for real time maintenance situations

Modules Implemented:

Demand, Inventory Optimization, Supply Chain Control Tower

Thank you.

Questions? Contact us!

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Links

IBP for MRO assets:

- [Demo for IBP MRO solution](#)
- Maintenance, Repair, and Operations process in IBP: [Help page](#)
- Maintenance, Repair, and Operations Best practice: [Best practice content](#)
- MRO Inventory Planning Operator in IBP: [Help page](#)
- Plant Maintenance Master data Extractors for ECC: [Maintenance, Repair and Operations-Relevant Data Extractors | SAP Help Portal](#)
- Plant Maintenance Key figure Extractors for ECC: [Maintenance, Repair and Operations-Relevant Key Figure Data Extractors | SAP Help Portal](#)
- CI-DS Template for the Plant Maintenance Key figure data: [IBP MRO SAP9 KF S4 ERP AddOn | SAP Help Portal](#)
- CI-DS Template for the Plant Maintenance Master data: [IBP MRO SAP9 MD S4 ERP AddOn | SAP Help](#)
- Project System Master data Extractors for ECC: [Collecting and Transforming Master Data for Maintenance, Repair and Operations Solution from Project System](#)
- CI-DS Template for the Project System Master data: [IBP MRO SAP9 PS MD S4 ERP AddOn | SAP Help Portal](#)

AI assets:

- Machine Learning for Master Data: [DAM - Master Data ML Video](#)
- Automatic Outlier Correction: [DAM - Auto Outlier Correction](#)
- A day in the future of supply chain planning: [DAM - A Day in the Future of Supply Chain Planning](#)